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ABSTRACT

The motivational dynamics of educationally disadvantaged students in Title I education programs in Illinois were studied. Pretesting and posttesting for 450 students in grades 1 through 6 were conducted by using two test forms, the Mature Test Form for the older students and the Happy Face Form for the younger students. Ethnicity included Whites, Blacks, Hispanics, and other students. Pretesting was done mostly during spring of 1979 and posttesting during November, 1979, permitting many of the students to experience two semesters of Title I instruction inbetween testing. The motives investigated comprised essentially a large portion of those used in researching middle class students and included minimal standards, attainment value, success attribution, and test anxiety, among others. A few profiles of results included: (1) students with higher self-concept for academic achievement will set higher standards for achievement; (2) attainment value is tied to continuing motivation; (3) students attributing success to their own ability experienced very low levels of test anxiety; (4) test anxiety is the most influential motive. In addition, a path analytic model for describing achievement motivation was constructed. (RL)

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Achievement Related Motives of
Educationally Disadvantaged Students

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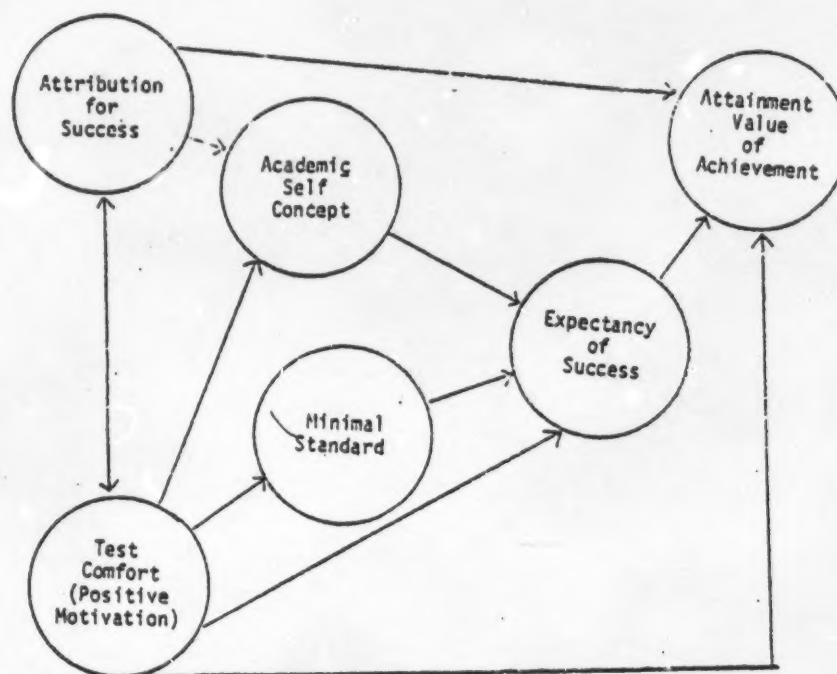
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Introduction

The purpose of this research was to study the motivational dynamics of students in Title I education programs. Several achievement related motives have, in the past, been studied extensively: test comfort, attribution, expectancy of success, minimal standard, attainment value, academic self-concept, and continuing motivation. However, generally the interdependence of these achievement related motives has not been examined. Rather, they have been treated as separate and independent motives. Furthermore, the effect of these variables has not been examined with the educationally disadvantaged student. The present study attempted to investigate that interdependence and do so with educationally disadvantaged students. What resulted was a path analytic model for describing achievement motivation. That path model is as follows:



METHODOLOGY

The Sample of Students

As mentioned previously, the study was to include ten (10) Title I sites having students from kindergarten through twelfth grader. However, five sites eventually composed the sample. Descriptions of these sites can be found in Appendix A of this report. At the end of the study it was noted that complete pretest and post-test motivational records were available for 250 students in the older age sample (Mature Test Form) and 200 students in the younger sample (Happy Face Test Form).

The older age sample (4, 5, 6th grade) was comprised of 42.6% female students and 56.5% male students. In terms of ethnicity, the older age sample included:

62.5% White students
29.3% Black students
0.9% Hispanic students
1.2% Other students

The demographic variable of parental occupation was also assessed. For the older age sample their parents had the following occupations:

<u>Occupation</u>	<u>% of Fathers</u>	<u>% of Mothers</u>
Professional	6.3%	3.3%
Skilled Worker	23.9%	8.5%
Military	3.9%	0.3%
Farmer	1.5%	0%
Housewife	0%	34.4%
Unskilled Worker	27.5%	25.1%

The younger age sample (1st, 2nd, and 3rd grade) was 43% female and 57% male. This is almost exactly the same composition as the older age sample. In terms of ethnicity, the younger age sample was 64% White, 33% Black, 2.93% Hispanic and 0.7% other. Thus, there were slightly more Hispanic students in the younger sample than the older age one. Parental occupations for the younger age sample were as follows:

<u>Occupation</u>	<u>% of Fathers</u>	<u>% of Mothers</u>
Professional	4.0%	2.0%
Skilled Worker	30.7%	11.3%
Military	4.3%	0.3%
Farmer	0.3%	0%
Housewife	0%	25.3%
Unskilled Worker	12.3%	13.3%

(Some of the younger students did not know their parents occupations and thus these will not add up to 100%)

The Test Administration

The pretest and post-test each took approximately one hour of instructional time from the introduction to the collection of all testing materials. The pretesting was done during the spring to mid-summer of 1979. The post-testing was done during November, 1979. By the post-testing date many of the students had actually experienced two semesters of Title I instruction since the pre-tests.

The Test Forms

Two test forms were used to assess the achievement related motives of the Title I students. One form, denoted as the Mature Test Form was administered to the older age students. A second test, the Happy Face Form, was given to the younger age sample. Specimen copies of each of these test forms are included in the Appendix of this report.

Prior to the pretesting, pilot testing of a much longer instrument was accomplished with 120 students in a metropolitan school system. Analysis of the pilot test items by promax factor analysis revealed constructs which were valid for use in the pretest and post-test.

The items which did not relate to those constructs were eliminated from further consideration. Each of the constructs making up the Mature Test Form and Happy Face Form will now be discussed.

Measurement - Mature Test Form

A strong case has been made (c.f. Fyans, 1980) that students are more than cognitive information processors and that other variables (such as motivation) have an impact upon student achievement. However, this case has been argued primarily with the "typical" middle class student. This study focused upon the measurement of these instructional patterns for the educationally disadvantaged Title I students in Illinois.

The motives investigated comprised essentially a large portion of all those used in researching the middle class student. Included in this investigation were such motives as attribution, attainment value, expectancy, minimal standard, and risk taking among others. Each of these motives are discussed in more detail in the remainder of this Chapter and in Chapter V. One of the underlying questions was how similar were the motivational profiles of the educationally disadvantaged to those found in previous research with typical, non-Title I students.

Test Anxiety. One of the primary psychological constructs investigated was that of test anxiety (also termed "negative motivation" by Hill (1979) or "evaluation anxiety" by Maehr (1979)). Test anxiety was assessed with a 16 item scale known as the Test Comfort Inventory. This scale was developed by a joint research effort between the Institute for Child Behavior and Development of the University of Illinois, Urbana-Champaign and the Illinois State Board of Education. A comprehensive description of this scale can be found in Hill (1980), or by referencing Korins et al (1979) or Ames (1979).

The scale items therefore comprise items 1 through 16 of the Mature Test Form found in the Appendix of this report. The average internal consistency reliability of the 16 item scale is approximately $r=.51$. Recently, however, Fyans (1979) discovered that Test Comfort Scale itself could be reduced to only 7 items without affecting its reliability. In fact, the reliability of the 7 item scale ranged from $r=.47$ to $r=.44$ to $r=.51$ at each of fourth, eighth, and eleventh grades. Thus, any measure on test anxiety in future work with the educationally disadvantaged should use the simpler of the item scales. The items comprising this simpler scale are items under 2, 3, 4, 6, 9, 10, and 16 on the Mature Test form in Appendix B of the report.

Perceived Purposefulness. One of the most recent breakthroughs in achievement research deals with the concept of perceived "purposefulness" of education. Maehr and Nicholls (in press) have argued that before one can interpret the achievement of a student, one needs to determine what actually are that student's goals or perceived purposes for being in school. Thus, one defines the student's achievement from the perceived perspective of the student. Maehr and Nicholls (in press) define three major purposes of education as held by students:

1. teacher approval
2. social comparison (show competencies to other students)
3. intrinsic understanding

Present theory calls for these to be mutually exclusive categories; however, this may not be the case.

Two methodologies were used to assess the relevance of these three purposes or goals for the Title I students. Title I students were asked to rank order these three goals in terms of their perceived order of importance. This was accomplished through the use of items 30 and 31 on the Mature Test Form (see Appendix B). Secondly, the students were expected to evaluate the importance (on an absolute scale) of two of the motives, Social Comparison and Teacher Approval, on items 17 and 18. Thus, this present Title I research measured the perceived purposes, both in terms of their relative strengths (ranking on items 30 and 31) and also their absolute strength by separate measurements on the motives of social comparison, teacher approval, and intrinsic understanding (continuing motivation). Perhaps the notion of the proposed exclusivity between these purposes can be assessed in using both a relative and absolute measurement methodology.

Continuing Motivation. The construct of continuing motivation (otherwise called "thirst for knowledge", Fyans, 1979) determines how intrinsically driven the students are to continue working on particular educational tasks. In the present research continuing motivation was tapped by a behavioral measure (the number of mathematics and reading items that the students actually attempted during the rest period between halves of the test.) (See pages 7 through 14 of the Mature Test Form in Appendix B), and a forced choice response (see items 35, 36, and 37 on the Mature Test Form). The behavioral measure has been found to be the more reliable of the two (c.f. Kerins, et al., 1979, Ames 1979) and will be the measure of continuing motivation upon which the results of this research are reported.

Minimal Standard, Certainty, Attainment Value, and Expectation. There are four motives that have been found to be particularly predictive of a student's school achievement. These are the variables of Minimal Standard, Certainty, Attainment Value, and Expectation. Crandall (1980, 1978) shows that these four variables are derived from the postulates of Expectancy X Value Theory (Rotter, 1966). These four variables (minimal standards, certainty, attainment value, and expectation) are measured respectively in the Mature Test Form (Appendix B) items 22, 23, 24, and 25 for mathematics achievement and items 26, 27, 28 and 29 for reading achievement. There has been theoretical speculation that the best predictor (or model) of achievement may well be a function of subtracting the student's minimal standard from the student's expectation. Thus, evidence for this speculation may be able to be obtained during this present Title I research.

Attribution. The student's attribution of success and failure are also extremely potent variables in terms of portraying that student's achievement motivation. Many articles have studied the affect of attributions experimentally (Weiner, 1979; Weiner, Heckhausen, Meyer, & Cook, 1972; Nierenberg, Goldstein & Weiner, 1974; Weiner and Kukla, 1970; Kelley, 1970; Kun and Weiner, 1970). Recent evidence has shown that students have idiosyncratic attributional styles through which students self-select certain of their educational tasks and environments (Fyans and Maehr, 1979; Kukla, 1978).

Unfortunately, only one study so far has investigated the attributional pattern for non-middle class, minority, children (Fyans, 1979). Thus, this Title I research has applied one of the most well researched psychological constructs to the ethnically diverse educationally disadvantaged. It will be interesting to see if the concept of attribution is even relevant for these Title I students. On the Mature Forms, item 33 assesses the student's success attribution and item 34 the student's failure attribution.

Risk Taking Tendency. Dr. J.W. Atkinson of the University of Michigan has made the construct of Risk Taking Tendency famous in motivational psychology. Through a series of publications (Atkinson & Raynor, 1978, 1974; Atkinson & Birch, 1970; Birch, Atkinson, & Bongert, 1974) he and others have incorporated the motive of "risk" within the general formula for predicting student achievement (Atkinson, 1959). The question of risk in itself would seem to be quite relevant to students who are educationally disadvantaged. Indeed, if the concept of "ecosystem distrust" (Triandis, 1979) is typical of the parents of disadvantaged families, it may well be true of their children. Thus, any of their children would surely perceive achievement in school as a "risky" endeavor. Item 38 (see Mature Test Form, Appendix B) was employed to measure the perceived riskiness of success in school by Title I students.

Self-Concept. Maracek and Mettee (1972) and Fyans, Salili, Farmer, and Maehr, (in press) have demonstrated the importance of self-concept in relation to student achievement motivation. In particular, self-concept was seen to be a multidimensional construct containing three dimensions:

- A. Academic Self-Concept
- B. Home Self-Concept
- C. Social Self-Concept

It was felt that students could have differential strengths and weaknesses in the three major touch points of their life: home, peers, and school. Items from the Coopersmith Inventory (Coopersmith, 1969) were used for each of the three of these self-concept scales. In terms of the Mature Test Form, (see Appendix B) the scales were composed of the following items:

Academic Self-Concept: items 39, 49, 53, 54, 55, 56, 59, 62.

Home Self-Concept: items 40, 44, 46, 47, 48, 50, 51, 61.

Social Self-Concept: items 41, 42, 43, 45, 52, 57, 58, 60

Using three indicators may help to detail which life areas are most associated with underachievement of Title I students.

Lie Scale/Self-Defensiveness. The remaining items on the Mature Test Form are known as the Lie Scale. These three items (19, 20, and 21) have been used with great success (c.f. Hill, 1980) to ferret out those students who are giving self defensive and socially acceptable answers. Thus, the test forms from those students who are merely responding "the way they are supposed to" can be gleaned from the valid test forms.

Measurement - Happy Face Form

The Mature Test Form previously described was designed and piloted for the Title I students for grades 3 through 12. For the younger students to be tested in the sample, the test form was modified to their developmental level (Luria, 1977). Thus, the test comfort scale was dropped from 16 to 9 items. These items are items 1 through 9 on the Happy Face Form (see Appendix B). The Lie Scale was measured by one item (item 10 on the Happy Face Form). Attribution for success and attribution for future were assessed by items 11 and 12, respectively, on the Happy Face Form. Continuing motivation (thirst for knowledge) was tapped by attempts at reading and mathematics items on pages 4, 5, and 6 of Happy Face Form.

Self-concept was tapped in terms of two academic areas: reading and mathematics. A very simple measurement was made possible through the use of the Nicholls (1979) smiley faces. The students were simply asked to mark which of the happy faces (on an 11 point scale) best described their position in their class for reading: from best reader to worst reader, and for mathematics: from best math students to poorest math student in the class. These happy faces are found on the second to the last (reading) and last page (mathematics) of the Happy Face Test Form.

Two other scales were used in the Happy Face Form. There were the Children's Achievement Motivation test of Weiner (Weiner, 1972, 1970) and a new Sense of Competence Inventory. The first five items on page 7 of the Happy Face Test form comprise the Sense of Competence scale and the bottom five items on page 7 are the Children's Achievement Scale.

All items on the Happy Face Form were read to the students and the students were also assisted in reading the choice of responses.

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RESULTS

The results will focus primarily upon the data for the Mature Test Form (see Appendix B). The structure of the presentation will move from the univariate to bivariate and then to multivariate analyses which were conducted upon the Mature Test Form data.

A large portion of the inference to be drawn from this research is derived from the multivariate analyses. The final component of this chapter will present the distributional results for the Nicholls (1979) Happy Face Self-Concept Inventory. Furthermore, both the Happy Face and Mature Test Form assessed student's Attribution. Thus, a developmental comparison will be made on attributions.

Univariate Growth or Decline

Nineteen separate motivational indicators were assessed in the older Title I students tested with the Mature Test Form. Table 1 presents the mean pretest and post-test scores (and standard deviations) of these motivational variables.

Table 5.1
Mean Pre and Post-Tests Scores Upon
Motivational Variables on Mature Test Form*

<u>Variable</u>	<u>Pretest Scores</u>		<u>Post-Test Scores</u>
Test Comfort	24.42 ($\sigma=4.74$)	**	24.74 ($\sigma=3.83$)
Academic Self-Concept	12.55 ($\sigma=2.82$)		12.50 ($\sigma=2.74$)
Home Self Concept	12.74 ($\sigma=2.95$)		12.70 ($\sigma=2.72$)
Social Self Concept	12.58 ($\sigma=2.66$)		12.40 ($\sigma=2.63$)
Social Comparison	3.30 ($\sigma=1.00$)		3.41 ($\sigma=.92$)
Need for Teacher Approval	3.50 ($\sigma=.86$)		3.53 ($\sigma=.77$)
Continuing Motivation	7.96 ($\sigma=7.72$)	**	6.85 ($\sigma=6.84$)
Minimal Standard Math	4.50 ($\sigma=2.54$)		4.64 ($\sigma=2.37$)
Certainty of Attaining Minimal Standards	3.42 ($\sigma=2.43$)		3.44 ($\sigma=2.50$)
Attainment Value Math	5.73 ($\sigma=1.85$)	**	5.99 ($\sigma=1.74$)
Expectancy of Success Math	5.70 ($\sigma=2.73$)	**	6.03 ($\sigma=2.65$)
Minimal Standard Reading	4.29 ($\sigma=2.49$)	**	4.57 ($\sigma=2.32$)
Certainty of Attaining Minimal Standard	3.70 ($\sigma=2.22$)		3.49 ($\sigma=2.43$)
Attainment Value Reading	5.50 ($\sigma=1.97$)	**	5.95 ($\sigma=1.77$)
Expectancy of Success Reading	5.51 ($\sigma=2.40$)	**	5.87 ($\sigma=2.54$)
Perceived Purpose of Achievement	2.07 ($\sigma=.98$)		2.14 ($\sigma=.92$)
Attribution for Success	2.78 ($\sigma=.85$)		2.77 ($\sigma=.81$)
Attribution for Failure	3.04 ($\sigma=1.25$)		3.06 ($\sigma=1.19$)
Risk Taking Tendency	2.16 ($\sigma=1.57$)		1.99 ($\sigma=1.46$)

* Refer to Mature Test Form Appendix to See Scalings of Each of These Indicators

**Significant Differences Pre Test to Post-Test

A t-test for making inferences for dependent samples (Glass and Stanley, 1970) was used for determining the significant differences between the pretest and the post-test results. As can be seen from Table 1 (see double asterisks) six of the variables showed significant growth ($p < .05$) between pretest and post-testing and one variable showed a significant decrease ($p < .01$).

The Title I students significantly increased in their Comfort in Educationally Testing and evaluation situations. It may be that the increased exposure to testing during Title I was responsible for this increase in Test Comfort. The students Attainment Value for both mathematics and reading also significantly increased in the importance of the students perception. In terms of the Attainment Value scale itself, the students pre to post-test moved significantly closer to the "6" position or the notion that "doing well" in mathematics and reading was very important to them.

Furthermore, the students Expectation of Success increased significantly from the pretesting to the post-testing. Again, as with Attainment Value, this significant increase for expectation was found for both reading and mathematics. For mathematics, the students moved from expecting a grade of B- (pretest) to a grade of B (post-test). Expectancy of success for reading did not move completely to the grade B level, but moved significantly closer to it. It is possible that the more individualized instruction of Title I provided more success experiences for such students, thus increasing their expectancy of success in education.

The students' Minimal Standard for reading also significantly increased between the pre and post-testing. The students went from having a minimal standard of a C+ as a grade in reading to perceiving that a B- was now the lowest grade that they could get and still remain satisfied.

According to the data presented in Table 1, the variables of Continuing Motivation shows significant decrease from pretest to post-test. This decrease may be an artifact of the measurement tool itself. The Continuing Motivation measure is a free response instrument. It is possible that the first administration to the students during the pretest desensitized the students to it and no students cared to participate the second time.

While in a univariate sense none of the other motivational variables expressed a significant pre to post-test growth, these other variables will become important from a bivariate and multivariate perspective in terms of a definition of the nature of achievement for these Title I students. Bivariate and multivariate results are discussed below.

Bivariate Relationships

A correlational analysis upon the pretest data revealed no significant correlations among any of the nineteen motivational variables. Apparently, at the time of the pretest a student's level on one motivational variable did not effect those of other variables; they were simply independent facets.

A correlational analyses upon the post-test data did reveal many significant ($p < .001$) correlations of interest. The variable that appeared to be the most correlated in the post-test was that of Test Comfort. Test Comfort was correlated with the following other motivational variables:

- $r = .49$ with Academic Self-Concept
- $r = .48$ with Social Self-Concept
- $r = .44$ with Home Self-Concept
- $r = .40$ with Internal (Ability or Effort) Attribution
- $r = .37$ with Expectancy of Success in Mathematics
- $r = .36$ with Expectancy of Success in Reading
- $r = .36$ with Social Comparison
- $r = .33$ with Minimal Standard for Mathematics
- $r = .33$ with Need for Teacher Approval
- $r = .31$ with Attainment Value for Mathematics

Thus, the construct of Test Comfort (or its reverse, Test Anxiety) does appear to have a multidimensional nature similar to that described by Nicholls (1978). If the notion of Test Anxiety is expanded to that of negative motivation suggested by Hill (1980), it may well be that, no matter what the nature of Test Anxiety, if Test Anxiety is present, it will negatively effect many facts and components of the Title I student's education and aspiration. Thus, a heavy load of Test Anxiety would negatively motivate a student's Academic Self-Concept, Internal Attributions, Expectancy of Success, Minimal Standards for Success, and perceived importance of Education (Attainment Value). Strategies such as noted by Hill (1980) should be implemented to remove the Test Anxiety and and negative motivation from the Title I students and keep the students comfortable with evaluation and testing.

Academic Self-Concept was significantly correlated with the following variables:

- $r = .71$ with Social Self-Concept
- $r = .66$ with Home Self-Concept
- $r = .49$ with Academic Self Concept
- $r = .34$ with Expectancy of Success in Reading
- $r = .34$ with need for Teacher Approval
- $r = .32$ with Expectancy of Success in Mathematics
- $r = .32$ with Internal (Ability or Effort) Attribution for Success

The importance of Self-Concept was noted by Coopersmith (1967) but now it has been demonstrated empirically in relation to other motives. The student's sense of academic competence is the most directly associated with the student's expectancy, internal success attribution, and perceived importance of teacher approval. Further studies should determine the casual links between these motives or other daily-life-school-experiences (such as success or failure).

Expectancy of Success for the areas of Mathematics were correlated with the following variables:

- $r = .46$ with Minimal Standard for Math
- $r = .38$ with Expectancy of Success in Reading
- $r = .37$ with Test Comfort
- $r = .32$ with Academic Self-Concept

Expectancy of Success for Reading Achievement was intercorrelated with the motivational variables in the following manner:

- $r=.56$ with Minimal Standard for Reading
- $r=.38$ with Expectancy of Success in Mathematics
- $r=.36$ with Test Comfort
- $r=.34$ with Academic Self-Concept
- $r=.34$ with Attainment Value for Reading
- $r=.32$ with Social Self-Concept
- $r=.30$ with Minimal Standard for Mathematics

A student's Minimal Standard for Mathematics was correlated as follows:

- $r=.46$ with Expectancy of Success in Mathematics
- $r=.36$ with Minimal Standard for Reading
- $r=.33$ with Test Comfort
- $r=.30$ with Expectancy of Success in Reading

Likewise, Minimal Standard for Reading was correlated with the variables:

- $r=.56$ with Expectancy of Success in Reading
- $r=.36$ with Minimal Standard for Mathematics
- $r=.31$ with Certainty of Attaining Minimal Standard for Reading

The previous sets of data reveal the intercorrelated nature of the variables of Expectancy of Success and Minimal Standard. It is theoretically (c.f. Crandall, 1969) pleasing to note the linear monotonic relationship between these two achievement motives. As a Title I student expects to succeed more, that student's minimal standard of satisfactory performance increases. Furthermore, expectancy is tied to Test Comfort and Self-Concept. Other research will have to determine any causal links from one variable to another. It may be that as teacher's facilitate an educational milieu that increases a student's self-concept and test comfort, the result may be increased student expectancy, minimal standards and achievement.

The third variable suggested by Crandall's work (1969), Attainment Value appears for Title I students to be linked to the students Attributions but not Minimal Standards. Thus, the perceived importance of a curricular area is not associated with the students standards of performance in the area itself. In particular, Attainment Value for Mathematics is correlated with:

- $r=.51$ with Attainment Value for Reading
- $r=.36$ with Need for Teacher Approval
- $r=.36$ with Internal (Ability or Effort) Attribution for Success
- $r=.31$ with Test Comfort

Attainment Value for Reading correlates with:

- $r=.51$ with Attainment Value for Mathematics
- $r=.34$ with Internal (Ability or Effort) Attribution for Success
- $r=.34$ with Expectancy of Success in Reading

It is important to emphasize that the other motive discussed by Crandall (1969), Expectancy of Success is not correlated with Attainment Value for Mathematics. Thus, the perceived importance of mathematics achievement appears independent of the Title I students performance expectancy and standards.

A final set of bivariate relationships could be presented for the variable of Internal Attributions for Achievement. In the analyses, this variable was scaled such that positive correlations would indicate attributions to ability or efforts. Relationships with Internal Attribution are of great importance educationally, since recent work (Fyans and Maehr, 1979) shows them not only to be postdictive (c.f. Weiner, 1979) of performance but actually quite strongly predictive of achievement behavior. Moreover, instructional sequences such as "attributional retraining" (Dweck, 1974) have been developed that teachers can use to facilitate their students achievement. In the present data, the correlates of Internal (Ability or Effort) Attribution for Success are:

- r=.40 with Test Comfort
- r=.34 with Attainment Value for Reading
- r=.32 with Attainment Value for Mathematics
- r=.32 with Academic Self-Concept

Multivariate Inference

The preceding correlational results indicated that the motivational data may be multivariate in nature. Thus, simply leaving the analyses at the univariate level could miss otherwise important information. In order to access this information, several multivariate discriminant analyses were run. The independent variables were:

Minimal Standard
Attainment Value
Attribution for Success
Sex
Ethnicity
Mother's, Occupation
Father's, Occupation

One discriminant analysis was run for each of these independent variables for the pretest and post-test mature test form data.

Table 5.2
Discriminant Function for Pretest Minimal Standard
Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .47, $\chi^2_{(4)} = 300.83$, $p < .000001$)
"D" Group Significantly Different Than All Other Groups

Minimal Standard (Reading) (-.83)
Expectation of Success (Math) (-.47)
Certainty of Minimal Standard (-.33)
Academic Self-Concept (-.28)

Minimal Standard. Table 5.2 presents the discriminative pretest results for the variables of Minimal Standard. The group discriminated out was the group who had their minimal standard of a grade as a "D." Those students had a lower expectation of success in mathematics, lower minimal standard for reading, lower certainty of attaining their math minimal standard, and lower academic self-concept than all other students.

Table 5.3
Discriminant Function Post-Test Minimal Standard
Predictors

Positive Weights

Negative Weights

(Function I: Wilks Lambda = .69, $\chi^2_{151} = 298.15, p < .00001$)

"B+" Group Significantly Different

Expectation of Success Math (.69)

(Function II: Wilks Lambda = .44, $\chi^2_{151} = 194.26, p < .0001$)

"A" Group Significantly Different

Academic Self-Concept (.66)

Social Self Concept (-.65)

Expectation of Success Reading (.53)

Table 5.3 presents the discriminant post-test results for the independent variable of minimal standard. These post-test functions again showed how closely expectation and minimal standard are normatively linked in the Title I students. However, these now reveal the positive dimension rather than the negative as in Table 6.1. Likewise a high minimal standard is associated with a strong academic self-concept. Interestingly enough the students' social self-concept is negatively associated with their achievement related motives.

Table 5.4
Discriminant Function for Pretest Attainment Value (Mathematics)
Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .44, $\chi^2_{132} = 238.89, p < .00001$)

Group "7," Very important to do well in mathematics is significantly different.

Continuing Motivation (.37)

Purpose is to understand an interesting subject (.30)

Attainment Value Reading (.28)

Minimal Standard Reading (.26)

Expectation of Success (Math) (.25)

Attainment Value. Table 5.4 presents the discriminant function pretest results for the variable of Attainment Value. As can be seen, a high attainment value (Group 7) for mathematics is associated with a student's continuing motivation and perceived purposefulness of school as to

understand an interesting subject. These results are theoretically complimentary to the notions of Maehr and Nicholls (in press). Again, Attainment Value is correlated to the other Crandall (1980) motivational variables of expectancy and expectation.

Table 5.5
Discriminant Functions for Post-Test Attainment Value (Mathematics)
Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .44, $\chi^2_{115} = 176.71, p < .0001$)
Group "7," Very Important to do well in Mathematics is significantly different.

Attainment Value (Reading) (.55)
Certainty of Attaining Minimal Standard Mathematics (.50)
Important to please teacher (.42)

(Function II: Wilk's Lambda = .62, $\chi^2_{188} = 112.14, p < .001$)
Group "1", Not important at all to do well in mathematics

Attainment Value (Reading)(-.59)
Certaining of Minimal Standard (Math)(-.51)
Unimportant to please teacher(-.41)
Prefer risks of 90% Surety of Success(-.40)
Attribution of Failure to Inability(-.31)

Table 5.5 presents the post-test Attainment Value discriminant functions.

For the post-test data, once again group 7 is significantly different than all other groups of students. The two attainment values are correlated. The post-test data also revealed the relationship to certainty and salience of the teacher.

Function II of Table 5.5 gives an excellent profile for the Title I student who does not feel math achievement is important. These students apparently feel the same about reading, and in contrast to group 7, feel it is unimportant to please the teacher. They take extreme risks which fits the Atkinson tradition (Atkinson and Raynor, 1974) and attribute failure to incompetence. Each of these variables have been argued to be associated with low achievement motivation but they have never been empirically found in a composite fashion. A Title I teacher could use "attributional retraining" to increase a child's Attainment Value.

Table 5.6
Discriminant Function for Pretest Attribution for Success

Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .16, $\chi^2_{14} = 103.97, p < .001$)
Group 3, Attribution of Success to Effort, Significantly Different

Continuing Motivation (.42)
Important to Please Teacher (.42)
Social Comparison (.39)
Minimal Standard (Math) (.32)

Attribution to Success. Table 5.6 presents the pretest discriminant function for the student's attribution to success. Those students who attribute their academic success to effort do express higher levels of continuing motivation. Similar results have been found for non-Title I students by Fyans (1979). These effort attributing students have significantly higher minimal standards for mathematics and are oriented toward social comparison and teacher approval. This latter variable has not been found for non-Title I students.

Table 5.7
Discriminant Function for Post-Test Attribution for Success

Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .49, $\chi^2_{14} = 170.06, p < .001$)
Group 4, Attribution of Success to Ability, Significantly Different

Test Comfort (.78)
Attribution of Failure to Lack of Effort (.76)
Continuing Motivation (.55)
Attainment Value (Reading) (.39)

The post-test discriminant results are given in Table 5.7. The data presented in Table 5.7 show that Test Comfort, for Title I students is tied to an attribution to ability. This substantiates the theoretical framework discussed by Nicholls (1977, 1973). This ability attribution/low test anxiety result was also pinpointed by Fyans (1979) with the typical non-Title I student. Ability ascription for success is also associated with the optimal attribution for failure that is to lack of effort. Perhaps the student's sense of competence would normatively attribute a failure experience to non-trying and thus promote future achievement. The same discriminatory dimension includes continuing motivation and attainment value. Thus, the pretest and post-test discriminant analyses have produced

an empirically validated profile of students attributing success to effort and students attributing success to ability. For purposes of review, the profiles are as follows:

Ability Attribution

Test Comfort

Attribution of Failure to Lack of Effort

Continuing Motivation

High Attainment Value (Reading)

Effort Attribution

Continuing Motivation

Important to Please Teacher

Social Comparison

High Minimal Standard (Math)

Both groups exhibit continuing motivation but it is the Ability Attribution students who have low test anxiety (Fyans, 1979). Moreover, the Ability Attributing students appear to be more facile at interpreting and handling failure experiences. The Effort Attributing students function with significantly higher minimal standards but not significantly higher attainment value. It appears as if the Ability students may actually identify their competence and themselves with particular curricular areas and thus perceive high importance of the area and be comfortable during testing of that curricular area. The connection between Effort attribution and social comparison and teacher approval are interesting in light of the findings of Salili, Maehr, Sorenson, and Fyans, 1976.

Table 5.8
Discriminant Function for Pretest Sex Differences
in Achievement Related Motives

Predictors

Positive Weights

Negative Weights

(Function I: Wilks Lambda = .16, $\chi^2_{(4)} = 45.466$, $p < .01$)

Male Students Scored Highest Upon This Function

Failure Attribution to Effort (.38)

Continuing Motivation (.31)

Attainment Value (Reading) (.31)

Important to Please Teacher (-.55)

Home Self Concept (-.37)

Sex Differences. Table 5.8 presents the pretest discriminant function between the male and female Title I students.

A relatively clear picture of sex differences is given in Table 5.8. Male students, as compared to females, exhibited significantly more continuing motivation, attributed failure to lack of effort, and had higher attainment value (Reading). (Interesting enough, once again attainment value is linked to attributing failure to lack of effort.) These male students also attach no importance at all to teacher approval. This latter finding substantiates the data of Feather (1966). Furthermore, female students appear to have significantly high home self-concepts.

Table 5.9
Discriminant Function for Post-Test Sex Differences
in Achievement Related Motives

Predictors

Positive Weights

Negative Weights

(Function I: Wilks, Lambda = .85, $\chi^2_{185} = 37.94, p < .01$)
Male Students Scored Highest Upon This Function

Test Comfort (.51)
Important to Get Understanding of
an Interesting Subject (.37)

Important to Please
Teacher (-.57)

The post-test sex differences are given in Table 5.9.

The results in Table 5.9 show male students as being low in text anxiety vis a vis females. Moreover, in terms of perceived purpose (Maehr & Nicholls, in press) males appear significantly oriented to "understanding an interesting subject" and not toward showing competence to other students or teachers approval. Female students once again felt the need for teacher approval.

Ethnic Differences. The discriminant function distinguishing between the achievement motives of white, black, hispanic, and other students is given in Table 5.10.

Table 5.10
Discriminant Function for Pretest Ethnic Group Differences
in Achievement Motives

Predictors

Positive Weights

Negative Weights

(Function I: Wilks Lambda = .35, $\chi^2_{182} = 129.35, p < .001$)
Black Students Scored Highest Upon This Function

Social Self Concept (.75)

Continuing Motivation (-.46)

Two motives were found at the pretest to significantly distinguish black students from white, hispanic and other students. Black students expressed higher levels of social self-concept. However, the black students also exhibited significantly less continuing motivation. The same profile is found for black students at the post-test. The post-test results are given in Table 5.11.

Table 5.11
Discriminant Function for Post-Test Ethnic Group Differences
in Achievement Motives

Predictors

Positive Weights

Negative Weights

(Function I: Wilk's Lambda = .62, $\chi^2_{12} = 111.61$, $p < .01$)
Black Students Scored Highest Upon This Function

Social Self-Concept (.44)

Continuing Motivation (-.52)
Importance of Teacher
Approval (-.44)

The data presented in Table 5.11 also show that the black students perceived teacher approval to be quite low in importance. Perhaps, the social-peer self concept of these students militates against an orientation upon the teacher, particularly since their school task focus (continuing motivation) is also comparatively low.

Parental Occupation. Discriminant analyses were also run for the pretest and post-test for the variable of father's and mother's occupation. Seven different designations were used to categorize parental occupations. Their respective percentages are:

<u>Occupation</u>	<u>% of Fathers</u>	<u>% of Mothers</u>
Professional	6.3%	3.3%
Military Services	3.9%	0.3%
Skilled Worker	23.9%	8.5%
Farmer	1.5%	0%
Housewife	0%	34.4%
Unskilled Worker	27.5%	25.1%
Other	1.8%	1.8%

At both the pretest and the post-test there were no significant differences in achievement related motives for students with fathers in differing occupations. However a significant difference was found for mother's occupation; these results are detailed in Table 5.12.

Table 5.12
Discriminant Function for Post-Test in Terms of Mother's Occupation

Predictor

Positive Weights

Negative Weights

(Function I: Wilks Lambda = .45, $\chi^2_{12} = 178.89$, $p < .0001$)
Students of Professional Mothers were the Significantly Different Group

Importance of Teacher Approval (.49)
Minimal Standard (Math) (.45)
Expectancy of Success (Math) (.41)

Social Comparison (-.47)
Test Comfort (-.35)

Students of professional mothers had significantly higher minimal standards and expectancy of success in mathematics. These students attach importance to teacher approval but have perceived low importance to social comparison inter-amongst their peers. Students of professional mothers also exhibit more test anxiety. It is possible that professional mothers are adamant about the achievement of their progeny and thus exert pressure on their children to "score well."

The Happy Face Form. John Nicholl's (1979) has suggested that self-concept be measured in young children by a Happy Face Scale. This Scale was used on the Title I inventory for 1st and 2nd grade students. Tables 5.13 and 5.14 present the distribution of the Nicholl's academic self-concept pretest and post frequencies to response scales for mathematics and reading.

Table 5.13
Distribution of Academic Self Concept (Math) of
1st and 2nd Grade Title I Students

Please put an "X" by where you are in the class.

	<u>Post-Test</u>	<u>Pretest</u>
11	The best reader in the class 43.7%	43.8%
10	11.3%	9.3%
9	6.3%	9.5%
8	4.0%	6.0%
7	8.7%	9.5%
6	15.0%	12.9%
5	2%	1.4%
4	1%	2.1%
3	1%	0.7%
2	0.7%	0.2%
1	The worst reader in the class 4.7%	2.6%

Table 5.14
Distribution of Academic Self Concept (Reading) of
1st and 2nd Grade Title I Students

	<u>Post-Test</u>	<u>Pretest</u>
11	The best student in math the class 44%	45.5%
10	13.7%	11.9%
9	6.0%	9.3%
8	5.7%	4.0%
7	8.7%	7.6%
6	13.3%	11.0%
5	1.7%	2.6%
4	0.3%	0.5%
3	0.7%	0.7%
2	0.7%	0.7%
1	The poorest student in the math class 3.7%	5.0%

As can be seen from Table 5.13 at both the pretest and the post-test at least 53% of the Title I students selected face 10 and 11. Unfortunately, at the post-test, almost twice as many students chose face 1 (4.6%) than during the pretest (2.6%).

For reading self-concept, approximately 57% of the students chose face 10 and 11 at the pretest and the posttest. However, a shift downward was noted for faces 4 and 1 during the post-test.

Attributional Comparisons - Mature Test Form/Happy Face Form

Upon both test forms students attribution were assessed. The post-test attributional results are as follows:

	<u>1st and 2nd Grade Students</u>	<u>5th and 6th Grade Students</u>
<u>To Success</u>		
Ability	27%	10%
Effort	42%	68.6%
Task Ease	22%	8.2%
Good Luck	8.3%	11.2%

To Failure

Inability	10%	11.2%
Lack of Effort	26%	57.5%
Task Difficulty	49.3%	23.9%
Bad Luck	19.3%	5.4%

These results show lower frequency of ascriptions to ability and task ease for success in the older students. An increase is found for effort attributions and luck. This drop in ability ascription does not match the theory or empirical data for cognitive development. A significant decrease in external ascription is found for failure attributions. Lack of effort becomes the predominant ascription of the older students. By 6th grade only 5.4% of the Title I students attributed failure to luck.

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CONCLUSIONS

The focus of this concluding chapter will be upon the inferences and recommendations derived from the research on Title I achievement related motives. While many analyses were conducted with the data, there are a few egregious profiles of results. These profiles are associated with the motivational variables of minimal standard, attainment value, success attribution, and test comfort.

Minimal Standards

The data show a strong correlation between the minimal standards held by a student for the subject areas of mathematics and reading. Both are apparently regarded as similar dimensions for achievement. Moreover, a student's minimal standard appears to be linked to a student's academic self-concept. Thus, students with higher self-concept for academic achievement (perhaps "high sense of competence", of Maehr and Nicholls, in press) will set higher standards for achievement (Maehr, 1974) and vice versa. Minimal standard then influences the expectations a student has of further success and certainty of attaining his or her set standard. (Methods for increasing a student's minimal standard will be discussed in the section discussing the composite path analytic results of this motivation study.)

Attainment Value

A motivational construct which appears somewhat independent of minimal standards, yet quite influential is that of a student's attainment value. Again, the student's perceived that mathematics or reading as interdependent curricular domains in terms of their attainment values.

Most interesting is that attainment value is tied to continuing motivation. This association makes logical sense. If a student feels achievement in a curricular area is meaningful, that student will attempt to perform upon as many as possible of the curricular relevant tasks. Noteworthy, is that high attainment value is also (like minimal standard) linked to expectations of future success and certainty.

The devastating influence of having a low attainment value is also manifested in the Title I data. A student who feels achievement in an area is unimportant will take very risky academic tasks; tasks which reflect underachievement according to the Atkinson model (Atkinson and Raynor, 1978). These low attainment value students also are capable of "failing-themselves-into-a-rut!" since they attribute their failures to incompetence (Dweck, 1974). With incompetence being a stable, unchanging attribution (Weiner, 1979), the hope of success for these students is directly minimized.

Success Attribution

The present data revealed multivariate inter-relationships between attributions of success and other achievement related motives. In fact there is a definite diverge once between ascribing to ability (competence) and ascribing success to effort (trying). Those students attributing success to their own ability and competence experienced very low levels of test anxiety. This linkage again makes logical sense, since students who feel they are academically competent should not fear exhibiting it. In fact, those students should seek out situations with which to test and evaluate their competency (e.g. Kukla, 1979). This was also found by the high levels of continuing motivation for these students. This linkage of ability/competence attribution to test anxiety and to continuing motivation was found by Fyans (1979). These students, feeling competence, interpreted any exhibition of their failure as simply nontrying, not inability.

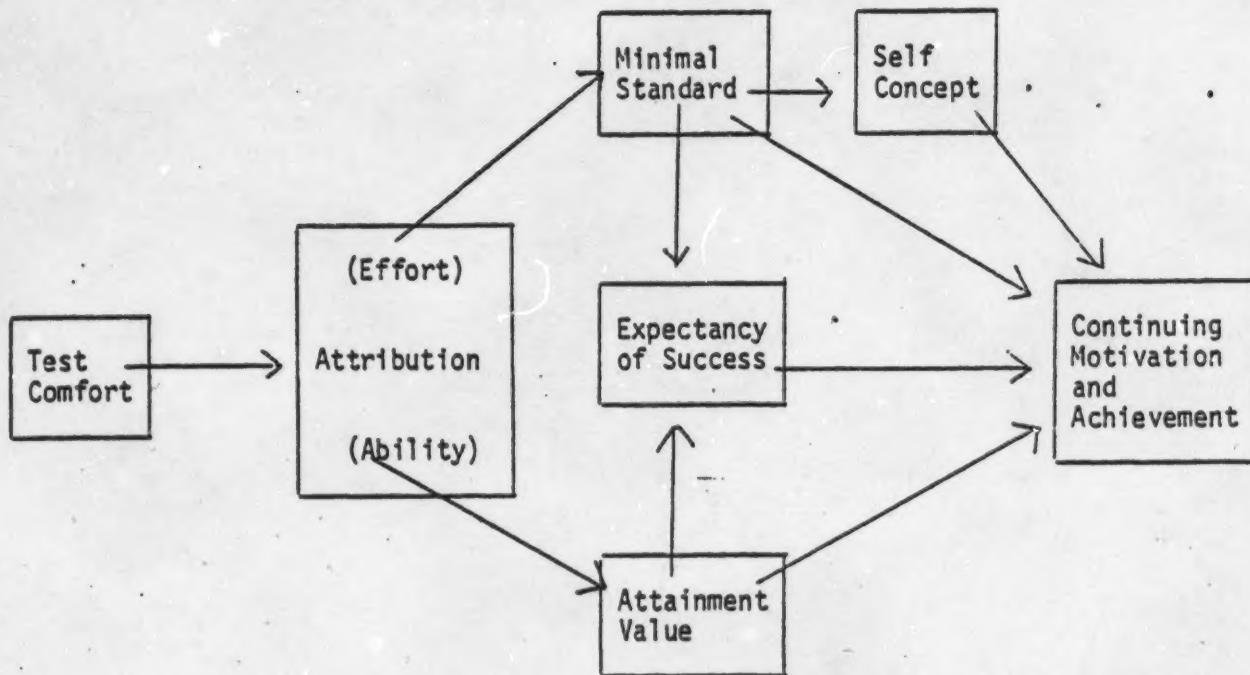
Effort ascribing students, however, did not experience significantly lower levels of test anxiety (cf. Fyans, 1979). However, these students did set significantly higher minimal standards of achievement for themselves and attempted significantly more continuing motivation items.

These (and the above) attributional results show a strong influence of attribution upon a student's minimal standards and attainment value. This relationship will become critical in our composite portrayal of motivation which follows.

Test Anxiety

The most influential motive found for the Title I students is that of test anxiety. Perhaps Ken Hill (1980) was not too far off by redefining test anxiety as negative motivation for our present data show that it is apparently related to almost all of the other achievement motivational construct. Some theorists (Nicholls, 1977) have contended that this overall relatedness of test anxiety makes it impossible to precisely define the theoretical nature of test anxiety. More pragmatically, however, the mere evidence of this overall intercorrelatedness indicates the pervasively negative effect that test anxiety has upon multiple facets of a student's motivational character. Thus, as test anxiety increases in a student, this will diminish (negatively motivate) the student self-concept (academic, self, home), attributional style, expectation of success, minimal standard, and attainment value.

Heuristically, this overall relatedness of test anxiety, (even if it simply and only represents general negative achievement motivation) when coupled with the previously discussed results, could suggest the following causal scheme path diagram for the motivational dynamics of a Title I student:



Thus, the student's desire for achievement situation (Maehr, 1976) (or continuing motivation and thirst for knowledge) and the students actual performance (Salili, Maehr, Sorenson, and Fyans, 1976 and Fyans, Kremer, Salili, and Maehr, in press) are canonical results of this path framework. At the present time this proposed model is under intensive investigation with Lisrel IV (Joreskog, 1974) and similar path analyses. However, even beyond the theoretical importance of uncovering this model, are the recommendations which lie relevant to its path.

Recommendations

The structure of the path diagram outlined above gives some very real implications in terms of increasing student's achievement and motivation. While it may be very important to increase a self-concept and expectancy, the diagram indicates that this will be difficult to accomplish directly without first influencing the student's minimal standards and attainment values (which the diagram shows are antecedent to expectancy and self-concept). What the motive path reveals is that the most antecedent components are test comfort and attribution. The model holds that positive changes in these two variables will increase motivation all along the path. Interestingly enough, test comfort and attribution have been shown empirically to be quite malleable by teachers and classroom activities. In terms of test anxiety Ken Hill (1980) has suggested the following which could be used as recommendations for Title I test anxious students:

1. Time Limits and Time Pressure

One characteristic of testing that directly enhances test anxiety is that of time pressure. It is quite clear that the mere suggestion of time limits of the test can effectuate debilitating test anxiety in at least 25% to 33% of the students taking the test (Fyans, 1979; Hill 1979). This means that the test itself, following time norms, will inaccurately measure the achievement of up to 1/3 of the students.

However, by the teacher merely increasing the time limits by 50% to 100% (say allowing the students 45 minutes to finish the test rather than just thirty minutes) this biasing and measurement error factor of test anxiety is eliminated. This is one recommendation for Title I, that students be permitted to take 50% to 100% as long to complete any standardized norm or criterion reference test.

2. Test Education:

A second major factor deals with directly educating the students about the test experience itself. For instance, students could be shown by their teacher examples or facsimile of tests.

But more importantly, teachers should spend time discussing and interpreting the meaningfulness of tests and testing to the Title I students, particularly as learning experiences. Furthermore, students could become acquainted with the tests format, structure, and instructions; three factors which have been directly linked to resultant

student test anxiety (Hill, 1980). Finally, the actual difficulty of the test and test items could be indicated to the students during their test education. That is, the students would never be given the actual items or taught the items, but they could at least be educated and told their actual chances of passing the items. Too often tests are presented to students as if all students could and should be able to answer all items correctly (Cronbach and Snow, 1976).

3. Success/Failure Test Experiences

Related to the preceding point is the concern that students who fail at tests repeatedly (i.e. Title I students) may feel there is no hope of actually passing one and thus they simply do not try any longer (see path model). A recommendation based upon this data and theoretical advances by Clifford (1980) would allow the students "Experience Time" with tests and test items which they could pass and gradually wean them into more intermediate and difficult items. Thus the students would be able to feel that they could perform well in testing situations. This "Experience Time" with tests and test items could be based upon test items developed by the teachers or old, unused tests and could be accomplished during the test education program suggested in (2) above.

4. Social Comparison Process

Salili, Maehr, Sorenson, and Fyans (1976), Fyans, Kremer, Salili, and Maehr (in press), and Ruble (1980) have repeatedly demonstrated the distinct effect of student evaluative information when shared directly and personally with the student, commonly with the peers, or to other teachers and parents. Unfortunately, most test results (which are definitely evaluative) are given communally such that all peers know all individual student results.

Social comparisons between the students comes into play serving to enhance a student's already burgeoning test anxiety. From the research evidence and theory it is suggested that student's themselves be given their own test results but that their results not be shared or communicated with any student in the classroom.

In terms of attributions a further recommendation could be made:

5. Attributional Re-Training

Investigations by Dweck and others (Dweck, 1975, 1977) have uncovered the development of ineffective and debilitating attributions of underachieving students. The development of these attributional patterns is closely linked to the success/failure experiences component suggested previously. Basically as the students fail repeatedly, they perceive there is no contingency between their effort and performance. They then begin to attribute this failure to incompetence and to inability and feel only luck can bring them good scores. To rectify this situation, Dweck (1977) has suggested (and employed) attributional retraining.

This retraining involves re-educating the student such that the student does perceive a contingency between "trying" and performance. These retraining experiences could well be the "success" experiences discussed above, merely adding cues and stimuli that the success is now due to the students own effort. Work by Dweck (1975) indicates that only between 20-24 retraining experiences are needed to have the student's re-ascribe their experienced success to their own efforts.

Thus, this Title I research has uncovered a motivational scale that can be used (either in composite or separate single variables) for measuring motives of interest in Title I students. It also revealed the motivational dynamics of these students and has suggested recommendations that, if used, will facilitate the achievement and motivation of Title I students in the United States.

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